

REMARKS

In response to the Office Action dated July 19, 2007, claims 35, 37-39, and 41-45 have been amended, claims 47 and 48 have been withdrawn. No new matter has been added. Reexamination and reconsideration of the claims as requested is respectfully requested.

In paragraph 2 on page 2 of the above-identified Office action, the Examiner made a restriction requirement under 35 U.S.C. 121 (*Divisional applications*) and 37 CFR § 1.142 (*Requirement for restriction*), stating:

2. Newly submitted claims 47-48 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: The claims require a new element, control measure, not previously required or considered in the previous claims. As indicated by applicant a controller is not essential as such the method or process of controlling can be performed by other means such as manually by an operator.

Claim 7 as originally filed recited a pump controller. Similarly, current claim 36 recites a pump controller. The feature "control measure" is simply a more generic way of indicating a way of controlling the pump, such as a pump controller. It is therefore believed that the feature "control measure" is **not** a newly introduced element, and consequently, the Examiner is respectfully requested to reconsider the restriction requirement.

In paragraph 4 on page 7 of the Office Action, claims 39-40 are rejected under 35 U.S.C. § 112 first paragraph as failing to comply with the enablement requirement. Applicant traverses this rejection.

In the *Response to Arguments* on page 4 of the Office action, the Examiner has argued that:

Applicant asserts claims 39 and 45 were amended to remove the negative

limitation. Claim 39 was not amended as such.

Claim 39 was not amended in the last response due to an oversight. The Examiner's comments have been considered and the appropriate corrections have been made to claim 39.

Since the Examiner does not mention or discuss claim 40 and applicant could not find anything in the claim that could result in a rejection under 35 U.S.C. § 112, it is assumed that the mentioning of claim 40 in the heading of the rejection is due to an oversight.

In paragraph 6 on page 8 of the Office Action, claims 35-46 are rejected under 35 U.S.C. § 112 second paragraph as being indefinite. Applicant traverses this rejection.

In particular, the Examiner stated:

The phrase citing at least one pore of a given radius is unclear. The phrase "a given radius" is not a specified dimension as to determine what exactly is the dimension of the pore. A given radius can be any radius one chooses, for the claim places no limitations on the radius.

As to the claims citing the pump produces a negative pressure that does not go below a critical pressure to overcome liquid in the pore, the examiner asserts any vacuum pump or pump capable of creating a negative pressure is equivalent to the claimed pump for any pump can produce a negative pressure that will be greater than the critical pressure of some medium that exists.

It should be noted the effect in which a pump is going to have on a liquid present in the device will depend from a number of factors, including pore size, the type of particular liquid (viscosity), the type of material the diaphragm is manufactured from, surface tension of such material (is it hydrophobic or hydrophilic in reference to the particular liquid). Without specifying the factors as stated above the device and method as claimed will not function.

With respect to the Examiner's comments regarding the language "a given radius", Applicant does not believe that recitation of any particular specific value or range of values for the radius is necessary for the claim to be sufficiently definite. The

language "a given radius" merely indicates that a pore has a known radius, and is not intended to specify dimensions of the radius. Specific dimensions of the radius will vary depending on the embodiment, and are not an essential element of the invention. They are therefore not required for definiteness. Further, sufficient description and examples are given in the specification for this feature to be enabled (see, e.g., paragraph [0082]).

With respect to the Examiner's comments regarding the claims that cite the pump producing a negative pressure that does not go below a critical pressure, Applicant believes that enough definition of the critical pressure has been given to permit one of ordinary skill in the art to understand what is being claimed. In particular, as recited in claims 35 and 41, the critical pressure is a pressure at which the surface tension of a liquid present at a pore of the diaphragm would be overcome. While this pressure may, ultimately, depend on various factors (as described in the specification, for example at paragraphs [0088]-[0091]), the values necessary to determine the critical pressure are usually known for any given arrangement (see paragraph [0092]). Failure to recite specific, numeric ranges does not render the claims indefinite since such particular ranges are not an essential element or feature of the present invention. Additionally, sufficient examples and description have been given in the specification (see, e.g., paragraphs [0079] – [0097]) to enable the claims.

Furthermore, the Examiner stated:

The equation of claims 37 and 43 are not further limiting of the structure, but state how one intends to calculate the critical pressure.

Claim 38 is directed to how the device is intended to be used. The medium is not positively claimed as an element of the apparatus.

Claim 39 is directed to a negative limitation which implies medium can be any other medium other than liquid. This is not supported by the specification.

As to claim 41, there are steps missing. The first step is providing the pipette, however while the second step is directed to producing a reduced pressure in relevance to a liquid. It is unclear where the liquid comes from and how it is related to the pipette. Is the liquid present in the pipette? Is the pipette placed in the liquid? If the pipette is placed in the liquid, but however such liquid is not taken up then how does one classify the method as a method of taking up a medium when the claim doesn't recite any medium ever entering the pipette? The method appears to be conventional for as presently drafted it is only directed to aspirating a liquid as explained above.

Claims 43-46 are not process limitations, for the claims do not add any additional steps to the method.

With respect to claim 37, the claim has been amended to more clearly recite a structural limitation. Similarly, claim 43 has been amended to more clearly recite a method step. Claims 38 and 39 have also been amended to recite a more clearly structural limitation on the apparatus, and claims 44 and 45 have been amended to more clearly recite method steps. Claim 41 has also been amended in response to Examiner's comments. While Applicant has made these amendments in order to advance prosecution, it is believed that most of these amendments were not strictly necessary in order to satisfy legal requirements for definiteness.

With respect to the Examiner's comments on claim 41 regarding the liquid and the medium, it should be clear from both the specification and claims (see, e.g., paragraphs [0022] – [0023] and [0027]-[0029], and claims 38, 39, 44, and 45) that the "liquid" present at the pore is the medium to be analyzed in some embodiments (claims 38 and 44 – "the medium to be analyzed is said liquid"). In these embodiments, the medium to be analyzed is a liquid (the same as the "liquid" present at the pore), and a second medium – generally a gas – is to be prevented from being taken up. In other embodiments, the medium to be analyzed is a gas (see claims 39 and 45). In such

embodiments, the medium to be analyzed is **not** the same as the "liquid" present at the pore. Instead, the "liquid" present at the pore is the second medium that is to be prevented from being taken up.

It is believed that as currently amended, the meaning of claim 41 is sufficiently clear to obviate the rejection under 35 U.S.C. § 112. Further, when the claim is read in light of the specification (or in light of the other claims), the meaning of the "liquid" present at the pore, as well as its relationship to the "medium to be analyzed" are sufficiently clear. That is, one of ordinary skill in the art would understand that in some embodiments, the "liquid" is the same as the "medium to be analyzed" (as recited in claims 38 and 44), while in others, such as where the "medium to be analyzed" is a gas, the "liquid" is not the same as the "medium to be analyzed" (e.g., claims 39 and 45).

With respect to claim 46, contrary to Examiner's assertion, it is believed that the claim adds an additional step to the method. In particular, the claim recites the further step of "configuring said diaphragm ...".

It is accordingly believed that all of the claims as amended meet the requirements of 35 U.S.C. § 112, second paragraph.

In paragraph 9 on page 10 of the Office Action, claims 35-46 are rejected under 35 U.S.C. §102 (b) as being anticipated by Bjorkman (US 4,642,2200); and in paragraph 10 on page 10, claims 35-46 are rejected as being anticipated by Moulton (US 5,851,491). Applicant traverses these rejections.

In paragraph 11 on page 11 of the Office Action, claims 35-46 are rejected under 35 U.S.C. §102 (e) as being anticipated by Kitajima, et al. US 6,225,130). Applicant traverses this rejection.

The rejections and the Examiner's comments have been carefully considered. It is believed that the claims were patentable over the applied references in their original form. However, in order to be responsive to Examiner' comments, the claims have been amended to more clearly define the structural and functional features of the present invention.

Before discussing the applied references in detail, it is believed that a brief review of the recited subject-matter would be helpful.

Claim 35 (similarly claims 41, 47, and 48) recite, *inter alia*:

a pipette for taking up a medium to be analysed, said pipette having a diaphragm containing at least one pore of a given radius;

a pump, said pump producing a negative pressure in said pipette and said pump being **configured** such that said negative pressure does **not** go below a critical pressure **at which the surface tension of a liquid** present at said at least one pore of said diaphragm **would be overcome**.

(Emphasis added.)

In the *Response to Arguments* on pages 3-4 of the Office action, the Examiner has argued that:

As to applicant's argument that the examiner must consider the function of the pump having the ability to produce a negative pressure that does not exceed the critical pressure of liquid. The examiner has previously taken such function in consideration clearly explained such a function as claimed is interpreted. While the claim further relates the pumps ability to a critical pressure, there is no numerical value (psi, kpa, atm., torr, etc) given as for one to ascertain or determine what is the value of such critical pressure, thereby determining the specific limitations of the pump. The cited critical pressure would be dependent upon a number of factors (as supported by a the equation cited in the claims), including but not limited to a specific liquid and its chemical and physical characteristics, the size of the one pore, the physical and chemical characteristics of the diaphragm, the environmental pressure in which one actually performs the "taking up" or aspiration. Considering such, as previously stated any pump structurally capable of generating a negative pressure (manually or automatically) in a pipette would be considered equivalent to the element as claimed. **As long as a pump is present and can be controlled to produce a negative pressure, it meets the limitation.** ... and since applicant

has not provided any information as to determine what the critical pressure is limited to it is only required the pump be capable of producing a negative pressure sufficient to aspirate any liquid.

(Emphasis added.)

The Examiner is correct in stating that the cited critical pressure would be dependent upon a number of factors. However there is enough information in the claims for determining the recited critical pressure; namely, the negative pressure *at which the surface tension of a liquid present at the at least one pore of said diaphragm would be overcome*. This feature of the present invention makes "it possible to ascertain automatedly [sic] whether all of the analyte ... has been taken up" (Paragraph [0099]) and "automatedly [sic] ensured that no medium other than the material to be analysed is taken up" (Paragraph [0100]).

In item 11 on page 9 of the Office action, the Examiner stated:

For the purpose of examination, a system comprising an aspirating or vacuum device including a porous structure (filter, frit, membrane, disc with a hole/aperture, etc.) and pump capable of producing a negative pressure is considered equivalent to the device as claimed by applicant.

Claim 35 now explicitly recites the structural feature of a pump **configured** to produce a negative pressure not going below a critical pressure and claim 41 now explicitly recites a method step of **determining** a critical pressure. It is believed that these features/elements must be given patentable weight.

The Examiner's interpretation of the claims that states that any pump that is capable of producing a negative pressure is considered to be equivalent to the device as claimed, is believed to be incorrect. To meet the limitations of the claims in the application, the pump must be configured to produce a pressure that does not go below

the critical pressure at which the surface tension of a liquid present at the at least one pore of the diaphragm would be overcome, or there must be a step of determining such a critical pressure. While any pump capable of producing a negative pressure might be able to produce a pressure that does not go below the critical pressure for some extant liquid, it is not necessarily configured to produce a pressure that does not go below the critical pressure for the specific liquid that is present at the pore (which has a given radius). Thus, for any given liquid and pore radius, it is possible, according to the invention, to determine a critical pressure. As claimed, there must be a step of determining this critical pressure, or the pump must be configured not to go below this critical pressure. It is *not* the case that any pump that can produce a negative pressure will meet these limitations for the particular liquid present at a pore.

None of *Bjorkman*, *Moulton*, or *Kitajima et al.* disclose an apparatus for taking up a medium that includes a pipette having a diaphragm with a pore, and a pump configured to produce a negative pressure not going below a critical pressure at which the surface tension of a liquid present at the pore would be overcome. Furthermore, none of *Bjorkman*, *Moulton*, or *Kitajima et al.* disclose a method that includes a step of determining a critical pressure at which the surface tension of a liquid present at the pore of the diaphragm would be overcome. Therefore, the invention as recited in claims 35 and 41 of the instant application is believed to be novel over all of *Bjorkman*, *Moulton*, or *Kitajima et al.* Claims 35 and 41 (as well 47 and 48, which recite similar limitations) are, therefore, believed to be patentable over the cited art. Because claims 36-40 are ultimately dependent on claim 35 and because claims 42-46 are ultimately dependent on claim 41, they are believed to be patentable over the cited art for at least

the same reasons.

In view of the foregoing, reconsideration and allowance of claims 35-46, as well as reconsideration of the restriction requirement and allowance of claims 47 and 48 are solicited.

CONCLUSION

In view of the amendments and reasons provided above, it is believed that all pending claims are in condition for allowance. The amendments clarify the patentable invention without adding new subject matter. Applicant respectfully requests favorable reconsideration and early allowance of all pending claims.


If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicant's attorney of record, Jeffrey R. Stone at (612) 436-3151.

Respectfully submitted,

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